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ABSTRACT

This document contains instructor's guides for slide/tape packages on careers in four areas: the communications and media cluster, the manufacturing cluster, the public services cluster, and the transportation cluster. Each instructor's guide provides the following: general instruction for student use--equipment needed, preparation before class, procedures for group instruction, procedures for individualized instruction, instructions for using slides and cassette tapes, and instructions for using the activity sheets; an activity sheet consisting of fill-in-the-blank sentences; an activity sheet answer key; and a narrative description of the slides. (NLA)

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ED349383

CAREERS IN THE COMMUNICATIONS AND MEDIA CLUSTER

MANUFACTURING CLUSTER

. PUBLIC SERVICES CLUSTER

TRANSPORTATION CLUSTER

INSTRUCTOR'S GUIDE

AUDIOVISUAL PACKAGE

Educational Development and Training Center
East Texas State University
Commerce, Texas

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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TX91CP1D

Audiovisual Package

Instructor's Guide

Careers in the COMMUNICATIONS AND MEDIA Cluster

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CAREERS IN THE COMMUNICATIONS AND MEDIA CLUSTER

Prepared by Dan C. Adams

Photographer: Glenn Fawcett

Published by
Educational Development and Training Center
East Texas State University
Commerce, Texas

in cooperation with
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Occupational Education and Technology
Austin, Texas

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To ensure educational equity, this material has been reviewed to eliminate bias or stereotyping.

Educational Development & Training Center
East Texas State University
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Introduction

In recognizing the importance of students' acquiring a **realistic** perception of career opportunities, this slide/tape presentation was developed as a result of a proposal funded by the Texas Education Agency to the Educational Development and Training Center at East Texas State University. To enhance its applicability for use in vocational courses and to provide relevancy for instruction in academic courses, the United States Office of Education's (USOE) career classification system has been used as the basis for determining the careers depicted in this presentation. With both students' needs and interests in mind, this presentation was designed with the flexibility required for use as a supplementary and/or primary teaching aid.

Included in each slide/tape package are a set of full-color slides, a cassette tape in both English and Spanish narrations, and the instructor's guide. Each instructor's guide provides general instruction for use by the students, the English version of the narrative portion of the presentation, and an activity sheet which will assist students in determining pertinent occupational information presented.

This slide/tape package is designed to complement the information included in the *Career Opportunities Instructional Guide* available from the Educational Development and Training Center at East Texas State University.

Mary W. Hendrix
Director

General Instructions

Equipment Needed

Before using this presentation, make certain that arrangements have been made to have the following equipment available for use: a slide projector, a projection screen, and a cassette recorder/player.

Preparations Before Class

Preview the presentation to ensure that the slide tray is loaded correctly and that all equipment is working properly.

Determine at what point in your instructional delivery the presentation can be used most effectively.

Plan a short but relevant introduction which will prepare students for learning.

Inform students of expected outcomes which should be achieved from viewing the presentation.

Allot sufficient time to show the presentation in its entirety.

Reproduce copies of the Activity Sheet.

Procedures for Group Instruction

Choose a point in the lesson where the slide/tape presentation will have the greatest impact.

Arrange physical conditions, such as room darkening and screen, and place students so that all can see and hear in comfort and without distraction.

After showing the slide/tape presentation, always discuss the information presented with your students; emphasize information needed to master selected outcomes/objectives.

If necessary, after checking for understanding, show the presentation or parts of it again to reinforce problem areas of learning.

Procedures for Individualized Instruction

Make sure adequate space is available and equipment is working properly.

Demonstrate the proper procedure for using the equipment.

Allow students to view the presentation as many times as necessary to understand the information presented.

Instructions for Using Slides and Cassette Tapes

Pick up each slide by its frame so that you do not touch the film.

Arrange the slides in the slide tray in sequential order with the slide number in the upper right corner facing you.

Insert the cassette tape in the recorder/player.

Rewind the cassette tape.

Turn on the slide projector; the first slide should be projected on the screen.

Start the cassette player.

Note: Please notify the Educational Development and Training Center if any defects exist in the quality of the cassette tape.

Depress the advance button at the sound of the "beep".

Instructions for Using the Activity Sheet

The Activity Sheet—Taking Notes is provided as a convenient means of taking notes during the slide/tape presentation. The answers to the questions presented will be useful in assisting students in obtaining an awareness of career opportunities classified in the Communications and Media cluster and in ascertaining pertinent occupational information. For your convenience, an answer key is provided.

Script

The English version of the narrative portion of the presentation is included in written form.

Communications and Media Cluster
Activity Sheet - Note Taking Activity

Directions: Answer the following statements while viewing the presentation "Communications and Media Cluster Narrative and Slide Description."

1. The Communications and Media cluster consists of a wide range of six career/job families, which include journalism, _____ _____, telephone and telegraph, satellite and laser transmission, _____ _____ _____, and the recording industry.

2. Each of the six job families uses a medium to convey a _____, whether it is a fact or some form of fiction.

3. Writers and editors communicate through the written _____. They develop original _____ and _____ for books, magazines, newspapers, radio and television broadcasts, advertisements, and film scripts.

4. Writers start by selecting a _____ or being assigned one by an _____. Through personal observation, library research, and interviews, _____ is gathered. Editors help writers revise or rewrite until the information is organized or phrased correctly.

5. A college degree generally is required and _____ employers prefer to hire people with degrees in _____, journalism, or _____. Persons with writing ability and knowledge about or a degree in a specialized field such as engineering or business may be hired as technical writers.

6. Employment of writers and editors is expected to _____ _____ than the average for all occupations through the year 2000.

7. All prospective writers need practical writing _____. High school and college newspapers not only give a student realistic _____ _____, but also these experiences impress an employer who sees them on your resume.

8. Writers must be able to express _____ clearly and logically. Successful writers share some valuable assets such as creativity, intellectual curiosity, a broad range of knowledge, _____-_____, and perseverance.

9. Are the _____ mentioned of a writer familiar to you? If so, it may be beneficial for you as a student to apply for one of the many summer internships offered by magazines, newspapers, and broadcast stations.

10. As a student intern, you would learn much about the publishing and broadcasting business by writing _____ pieces and conducting some research and some _____.

11. To familiarize you with the job family of motion pictures, let us view the job description of a _____ operator, whose main duty is to portray _____, places, and _____ on film accurately and artistically .

12. Capturing the desired mood and effect a director wants is not solely dependent on the actor's _____, but also on the camera operator's _____ to manipulate technically complex equipment, which requires years of training and experience.

13. _____-_____-_____ training is one of the most important sources of training for camera operators because there are relatively _____ academic programs oriented toward motion picture photography.

14. Employment of camera operators is expected to grow _____ as the entertainment industries expand, but _____ for careers in this field is expected to remain keen — meaning that cinematography attracts many more applicants than there are jobs.

15. Students interested in cinematography should keep in mind the tough competition for entry-level positions and have a _____-_____ education in mathematics, physics, and chemistry to understand the various workings of _____, _____, light sources, and developing processes.

16. A switchboard operator or Private Branch Exchange (PBX) operator is one example of the jobs within the _____ and telegraph job family.

17. _____ or _____ operators convert interoffice calls, answer and relay outside calls, assist company employees in making outgoing calls, and supply information to or take messages from callers as a receptionist does.

18. _____-_____-_____ training by experienced personnel or by a local telephone company instructor is usually all that is required; however, many organiza-

tions still prefer to hire persons with a _____ _____ diploma who have good reading, spelling, and arithmetic _____ that can adapt to other clerical-type _____ and duties.

19. While the trend is to employ fewer directory assistance operators, the job _____ for switchboard and PBX operators is expected to grow _____ than the average for all occupations as businesses _____ to meet the changing needs of the population.

20. Because it is crucial for business organizations to keep the _____ of communication _____ at all times, switchboard/PBX operators and receptionists are rarely laid off during recessions or unprofitable times.

21. The satellite and _____ transmission job family is the newest member of the _____ and _____ Cluster.

22. The full potential for careers in this new technological field is unknown; however, consumers have purchased home satellite dish antennas at a rapid rate. Thus, jobs have been provided in the _____ and _____ of these antennas.

23. A _____ announcer or _____ newscaster is one example of the careers one may choose within the radio television broadcasting job family.

24. Radio announcers are often called _____ _____ and television announcers are usually called newscasters or _____. Both present _____, _____, weather, interviews, and report on community activities.

25. Announcers must have a pleasant and well-controlled _____, good timing, excellent pronunciation, and _____ English usage.

26. Announcers must be willing and capable to work long, irregular hours under pressure to maintain tight schedules. However, many announcers state the _____ of creative work, personal contacts, and becoming widely known far outweigh the disadvantages.

27. While formal training in _____ journalism from a college or technical school is valuable, station officials pay particular attention to _____ auditions that show an applicant's delivery.

28. Employment of announcers is expected to _____ as _____ as the average for all occupations through the year 2000. Competition of jobs as announcers is expected to remain keen because the broadcasting field _____ more job seekers than there are jobs.

29. Students interested in competing for careers in broadcasting as an announcer may find courses in English, public speaking, _____, foreign languages, and electronics valuable, along with hobbies such as _____ and _____.

30. A _____ may specialize in one or more categories of music such as _____, gospel, classical, blues, or jazz. The talent and _____ to play one or more instruments is always beneficial for a musician whether he or she performs in an orchestra, band, rock group, or _____ combo.

31. Musicians may perform alone or as part of a group on stage, radio, or in _____or movie productions. Performances are generally at _____ and on weekends and often require travel.

32. Many musicians often supplement their incomes with other types of _____ because their performing engagements may only be _____-_____ work.

33. Professional musicians usually began studying an instrument at an _____ age and gained experience by performing in a _____ or _____ band or orchestra or in a combo.

34. Musicians who perform _____ music must have an understanding of and a feeling for that style of music. Formal classical training through a _____ program not only expands employment opportunities, but may also heighten _____.

35. Even though employment of musicians is expected to grow more _____ than the average for all jobs through the year 2000, thousands of job openings will occur as musicians _____ or leave the occupation.

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Communications and Media Cluster
Activity Sheet - Note Taking Activity
KEY

Directions: Answer the following statements while viewing the presentation "Communications and Media Cluster Narrative and Slide Description."

1. The Communications and Media cluster consists of a wide range of six career/job families, which include journalism, motion pictures, telephone and telegraph, satellite and laser transmission, radio/television broadcasting, and the recording industry.

2. Each of the six job families uses a medium to convey a message, whether it is a fact or some form of fiction.

3. Writers and editors communicate through the written word. They develop original fiction and nonfiction for books, magazines, newspapers, radio and television broadcasts, advertisements, and film scripts.

4. Writers start by selecting a topic or being assigned one by an editor. Through personal observation, library research, and interviews, research is gathered. Editors help writers revise or rewrite until the information is organized or phrased correctly.

5. A college degree generally is required and most employers prefer to hire people with degrees in communications, journalism, or English. Persons with writing ability and knowledge about or a degree in a specialized field such as engineering or business may be hired as technical writers.

6. Employment of writers and editors is expected to increase faster than the average for all occupations through the year 2000.

7. All prospective writers need practical writing experience. High school and college newspapers not only give a student realistic job skills, but also these experiences impress an employer who sees them on your resume.

8. Writers must be able to express ideas clearly and logically. Successful writers share some valuable assets such as creativity, intellectual curiosity, a broad range of knowledge, self-motivation, and perseverance.

9. Are the characteristics mentioned of a writer familiar to you? If so, it may be beneficial for you as a student to apply for one of the many summer internships offered by magazines, newspapers, and broadcast stations.

10. As a student intern, you would learn much about the publishing and broadcasting business by writing short pieces and conducting some research and some interviews.

11. To familiarize you with the job family of motion pictures, let us view the job description of a camera operator, whose main duty is to portray people, places, and events on film accurately and artistically.

12. Capturing the desired mood and effect a director wants is not solely dependent on the actor's ability, but also on the camera operator's skills to manipulate technically complex equipment, which requires years of training and experience.

13. On-the-job training is one of the most important sources of training for camera operators because there are relatively few academic programs oriented toward motion picture photography.

14. Employment of camera operators is expected to grow rapidly as the entertainment industries expand, but competition for careers in this field is expected to remain keen — meaning that cinematography attracts many more applicants than there are jobs.

15. Students interested in cinematography should keep in mind the tough competition for entry-level positions and have a well-rounded education in mathematics, physics, and chemistry to understand the various workings of lenses, films, light sources, and developing processes.

16. A switchboard operator or Private Branch Exchange (PBX) operator is one example of the jobs within the telephone and telegraph job family.

17. Switchboard or PBX operators convert interoffice calls, answer and relay outside calls, assist company employees in making outgoing calls, and supply information to or take messages from callers as a receptionist does.

18. On-the-job training by experienced personnel or by a local telephone company instructor is usually all that is required; however, many organiza-

tions still prefer to hire persons with a high school diploma who have good reading, spelling, and arithmetic skills that can adapt to other clerical-type skills and duties.

19. While the trend is to employ fewer directory assistance operators, the job outlook for switchboard and PBX operators is expected to grow faster than the average for all occupations as businesses expand to meet the changing needs of the population.

20. Because it is crucial for business organizations to keep the lines of communication open at all times, switchboard/PBX operators and receptionists are rarely laid off during recessions or unprofitable times.

21. The satellite and laser transmission job family is the newest member of the Communications and media Cluster.

22. The full potential for careers in this new technological field is unknown; however, consumers have purchased home satellite dish antennas at a rapid rate. Thus, jobs have been provided in the manufacturing and selling of these antennas.

23. A radio announcer or television newscaster is one example of the careers one may choose within the radio television broadcasting job family.

24. Radio announcers are often called disk jockeys and television announcers are usually called newscasters or anchors. Both present news, sports, weather, interviews, and report on community activities.

25. Announcers must have a pleasant and well-controlled voice, good timing, excellent pronunciation, and correct English usage.

26. Announcers must be willing and capable to work long, irregular hours under pressure to maintain tight schedules. However, many announcers state the rewards of creative work, personal contacts, and becoming widely known far outweigh the disadvantages.

27. While formal training in broadcast journalism from a college or technical school is valuable, station officials pay particular attention to taped auditions that show an applicant's delivery.

28. Employment of announcers is expected to increase as fast as the average for all occupations through the year 2000. Competition of jobs as announcers is expected to remain keen because the broadcasting field attracts more job seekers than there are jobs.

29. Students interested in competing for careers in broadcasting as an announcer may find courses in English, public speaking, drama, foreign languages, and electronics valuable, along with hobbies such as sports and music.

30. A musician may specialize in one or more categories of music such as rock, gospel, classical, blues, or jazz. The talent and ability to play one or more instruments is always beneficial for a musician whether he or she performs in an orchestra, band, rock group, or jazz combo.

31. Musicians may perform alone or as part of a group on stage, radio, or in TV or movie productions. Performances are generally at night and on weekends and often require travel.

32. Many musicians often supplement their incomes with other types of jobs because their performing engagements may only be part-time work.

33. Professional musicians usually began studying an instrument at an early age and gained experience by performing in a school or community band or orchestra or in a combo.

34. Musicians who perform popular music must have an understanding of and a feeling for that style of music. Formal classical training through a degree program not only expands employment opportunities, but may also heighten creativity.

35. Even though employment of musicians is expected to grow more slowly than the average for all jobs through the year 2000, thousands of job openings will occur as musicians retire or leave the occupation.

16

Communications and Media Cluster
Narrative and slide description

Slide No.	
1	Focus/syncronize slide
2	Credit slide — EDTC/TEA
3	Credit slide — "40 Hour Week"
4	Credit slide — "Forty Hour Week (For a Livin')"
5	The Communications and Media cluster includes a group of occupations and careers involved with the transmission and receiving of messages.
6	The Communications and Media cluster consists of six career/job families, which include journalism, motion pictures, telephone and telegraph, satellite and laser transmission, radio/television broadcasting, and the recording industry.
7	Each of the six job families uses a medium to convey a message, either a fact or some form of fiction.
8	The journalism job family includes such careers as foreign correspondent, feature reporter, columnist, editorial writer, editor, and librarian.
9	Writers and editors communicate through the written word. They develop original fiction and nonfiction for books, magazines, newspapers, radio and television broadcasts, advertisements, and film scripts.
10	Writers start by selecting a topic or being assigned one by an editor. Through personal observation, library research, and interviews, research is gathered. Editors help writers revise or rewrite until the information is organized or phrased correctly.
11	A college degree generally is required and most employers prefer to hire people with degrees in communications, journalism, or English. Persons with writing ability and knowledge or a degree in a specialized field such as engineering or business may be hired as technical writers.
12	Employment of writers and editors is expected to increase faster than the average for all occupations through the year 2000.
13	Earnings and beginning salaries for writers ranged from $18,000 to $26,000 in 1988. Experienced writers and researchers generally ranged from $20,800 to $37,900 a year.

14	All prospective writers need practical writing experience. High school and college newspapers not only give a student realistic job skills, but experience gained there will be impressive on your resume.
15	Writers must be able to express ideas clearly and logically. Successful writers share some valuable assets such as creativity, intellectual curiosity, a broad range of knowledge, self-motivation, and perseverance.
16	Are the characteristics of a writer mentioned similar to ones you possess? If so, it may be beneficial for you as a student to apply for one of the many summer internships offered by magazines, newspapers, and broadcast stations.
17	As a student intern, you would learn much about the publishing and broadcasting business by writing short pieces and conducting research and interviews.
18	The motion pictures job family includes many occupations and careers that vary considerably. A few are: producer, script/screen writer, camera operator, recordist, sound cutter, and make-up artist.
19	To familiarize you with the job family of motion pictures, let us view the job description of a camera operator, whose main duty is to portray people, places, and events on film accurately and artistically.
20	Filming quality movies is a technical as well as a creative process in which camera operators must be familiar with all the possible combinations of lighting, filters, films, cameras, and specially constructed motorized vehicles.
21	Capturing the desired mood and effect a director wants is not solely dependent on the actor's ability, but also on the camera operator's skills to manipulate technically complex equipment, which requires years of training and experience.
22	On-the-job training is one of the most important sources of training for camera operators because there are relatively few academic programs oriented toward motion picture photography.
23	Some universities, colleges, and technical schools offer courses in cinematography, which generally is part of a communications or journalism program; however a few schools do provide degree programs in cinematography.
24	Employment of camera operators is expected to grow rapidly as the entertainment industries expand, but competition for careers in this field is expected to remain keen — meaning that cinematography attracts many more applicants than there are jobs.
25	Most experienced camera operators earned between $24,600 and $33,800 in 1988. Those that advance and become known may become directors of photography on movies and TV programs earning more than $33,800; whereas camera trainees working as first or second assistants to camera operators would make less than $24,600.
26	Students interested in cinematography should keep in mind the tough competition for entry-level positions. A well-rounded education in mathematics, physics, and chemistry is necessary for understanding the various workings of lenses, films, light sources, and developing processes.

27	The telephone and telegraph job family revolutionized the immediacy in communication originally by transmitting sound through wire. Even though inventive technology is one area providing careers in this job family today, public service is the main area of focus in this industry with careers such as: manager, customer service; telephone operator, switchboard/PBX; line inspector; line repairer/installer; public message service supervisor; and tree trimmer.
28	A switchboard operator or Private Branch Exchange (PBX) operator is one example of the jobs within the telephone and telegraph job family.
29	Switchboard or PBX operators convert interoffice calls, answer and relay outside calls, assist company employees in making outgoing calls, and supply information to or take messages from callers as a receptionist does.
30	On-the-job training by experienced personnel or by a local telephone company instructor is usually all that is required; however, many organizations still prefer to hire persons with a high school diploma who have good reading, spelling, and arithmetic skills that can adapt to other clerical-type skills and duties.
31.	While the trend is to employ fewer directory assistance operators, the job outlook for switchboard and PBX operators is expected to grow faster than the average for all occupations as businesses expand to meet the changing needs of the population.
32	Because it is crucial for business organizations to keep the lines of communication open at all times, switchboard/PBX operators and receptionists are rarely laid off during recessions or unprofitable times.
33	A switchboard/PBX operator may earn anywhere from $8,600 to $25,400 a year depending on the organization, job duties, experience, and hours.
34	The satellite and laser transmission job family is the newest member of the Communications and Media cluster.
35	The full potential for careers in this new technological field is unknown; however, consumers have purchased home satellite dish antennas at a rapid rate. Thus, jobs have been provided in the manufacturing and sales of these antennas.
36	Because of expected future technological growth of satellite and laser transmission, there may be a high demand for occupations involved in the designing, manufacturing, and selling of this new innovative technology.
37	At present, however, occupational facts concerning job duties and types, educational training, earnings, and employment outlook have not been disclosed.
38	Those students interested in this new field may find more information concerning career facts by locating a business through the Yellow Pages of a telephone book.
39	The job family of radio/television broadcasting includes careers such as announcer/broadcaster/newscaster, copyright expert, video recording engineer, radio engineer, station relations contact representative, and television schedule coordinator.
40	A radio announcer and/or television newscaster is one example of the careers one may choose within the radio/television broadcasting job family.

41	Radio announcers are often called disk jockeys and television announcers are usually called newscasters or anchors. Both present news, sports, weather, interviews, and report on community activities. We will refer to the career name of announcer while presenting the job characteristics of both radio and television announcers.
42	Announcers must have a pleasant and well-controlled voice, good timing, excellent pronunciation, and correct English usage.
43	Announcers must be willing and capable to work long, irregular hours under pressures to maintain tight schedules. However, many announcers state the rewards of creative work, personal contacts, and becoming widely known far outweigh the disadvantages.
44	While formal training in broadcast journalism from a college or technical school is valuable, station officials pay particular attention to taped auditions that show an applicant's delivery.
45	Employment of announcers is expected to increase about as fast as the average for all occupations through the year 2000. Competition of jobs as announcers is expected to remain keen because the broadcasting field attracts more job seekers than there are jobs.
46	Salaries of announcers vary widely. They are higher in television than in radio. In 1988, radio announcers averaged $20,000, with a range from an average $11,000 to $51,000. Television announcers/anchors averaged $56,000, ranging from $22,000 to $204,000.
47	Students interested in competing for careers in broadcasting as an announcer may find courses in English, public speaking, drama, foreign languages, and electronics valuable, along with hobbies such as sports and music.
48	The recording industry job family involves itself with the creation and promotion of music. Some of the careers include: producer; musician, instrumental; composer; lyricist; arranger; and music director.
49	A basic premise of careers in this job family is that of having knowledge about music, therefore, let's consider the musician's career.
50	A musician may specialize in one or more categories of music such as rock, gospel, classical, blues, or jazz. The talent and ability to play more than one instrument is always beneficial for a musician whether he or she performs in an orchestra, band, rock group, or jazz combo.
51	Musicians may perform alone or as part of a group on stage, radio, or in TV or movie productions. Performances are generally at night and on weekends and often require travel.
52	Many musicians often supplement their incomes with other types of jobs because their performing engagements may only be part-time work.
53	Professional musicians usually began studying an instrument at an early age and gained experience by performing in a school or community band or orchestra or in a combo.

54	Musicians who perform popular music must have an understanding of and a feeling for that style of music. Formal classical training through a degree program not only expands employment opportunities, but may also heighten creativity.
55	Even though employment of musicians is expected to grow more slowly than the average for all jobs through the year 2000, thousands of job openings will occur as musicians retire or leave the occupation.
56	Musicians' earnings vary widely according to the performer's professional reputation, geographic location, and the number of hours worked.
57	We have now briefly looked at some of the types of careers that fall into the six job families of the Communications and Media cluster.
58	Should you want to locate more information concerning careers in the Communications and Media cluster, ask your teacher or school counselor to assist you in finding helpful resources.
59	May you find the right path as you march through the field of Career Investigation.
60	(Blank Slide)

TX91CD10

Audiovisual Package

Instructor's Guide

Careers in the MANUFACTURING Cluster

CI-122-AVS

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CAREERS IN THE MANUFACTURING CLUSTER

Prepared by Dan C. Adams

Photographer: Glenn Fawcett

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East Texas State University
Commerce, Texas

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Director

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Rewind the cassette tape.

Turn on the slide projector; the first slide should be projected on the screen.

Start the cassette player.

Note: Please notify the Educational Development and Training Center if any defects exist in the quality of the cassette tape.

Depress the advance button at the sound of the "beep".

Instructions for Using the Activity Sheet

The Activity Sheet—Taking Notes is provided as a convenient means of taking notes during the slide/tape presentation. The answers to the questions presented will be useful in assisting students in obtaining an awareness of career opportunities classified in the Manufacturing cluster and in ascertaining pertinent occupational information. For your convenience, an answer key is provided.

Script

The English version of the narrative portion of the presentation is included in written form.

Manufacturing Cluster
Activity Sheets - Taking Notes Activity

Directions: Answer the following statements while viewing the presentation "Manufacturing Cluster Narrative and Slide Description."

1. Manufacturing consists of careers and occupations that develop both _____ materials and _____ products.
2. The manufacturing cluster is divided into seven job families: scientists, _____, unskilled laborers, semi-skilled workers, _____ _____, technicans, and management.
3. Physicists find ways to apply laws and theories to problems in nuclear energy, _____, materials, communications, aerospace _____, and medical instrumentation.
4. Some _____ do the actual basic research, which increases scientific knowledge; however, most physicists work in research and development to create new devices, products, and processes.
5. An example of basic research leading to applied research is in solid-state physics which led to the development of transistors and then to the further development of integrated circuits used in _____.
6. A doctoral degree in physics or a closely related field such as chemistry is almost essential for most jobs in physics. Those with a Ph.D. should experience _____ _____ employment opportunities in the 1990s.
7. Students considering a career in physics should have an inquisitive mind, _____ ability, imagination, and the _____ to work on their own.
8. The aerospace engineer designs, develops, tests, and helps produce commercial and military _____, missiles, and _____.
9. They may also specialize in one type of _____ product, such as passenger planes, helicopters, spacecraft, or rockets. Within one of these products the aerospace engineer may further specialize in areas like structural design,

guidance, navigation and control, instrumentation and _____, or production methods.

10. A bachelor's degree in _____ is generally acceptable for beginning engineering careers.

11. Due to the decreased enrollment of engineering _____ since 1983, the career outlook for employment is expected to increase _____ than the average for all occupations through the year 2000.

12. _____ growth is expected in the civilian sector of designing and developing quieter and more fuel efficient commercial aircraft, as well as an _____ demand for spacecraft, helicopters, and business aircraft.

13. It is important that engineers continue education throughout their careers due to changing technologies. Students interested in this field should be able to work creatively as part of a _____, have an analytical mind, and a capacity for _____.

14. The bindery worker is one example of jobs classified in the unskilled laborers job family. It is this person's job to bind printed _____ into finished products such as _____ or magazines.

15. The process of binding involves the coordination of both _____ and _____ in operations such as cutting, folding, gathering, gluing, stitching, trimming, sewing, wrapping, and other finishing operations.

16. Most bindery workers learn the craft through _____-_____-_____ training and acquire knowledge of using machinery and equipment one piece at a time.

17. Employment of _____ _____ is expected to grow as fast as the average for all occupations through the year 2000 in response to the _____ and expected growth of both commercial printers and book publishers.

18. A plastic-working machine operator generally specializes in the operation of one type of machine that may combine materials, extrude them, and/or mold them. Newly developed materials and processes will bring about a need for more _____ _____.

19. There are no specific requirements for this job; however, employers prefer applicants with a high school _____.

20. Workers receive _____-_____-_____ training by observing and assisting other machine operators and advance to more responsible tasks when they have gained _____.

21. Employment of plastic-working machine operators is expected to _____ _____ than the average for all occupations through the year 2000 due not only to the increasing demand for plastic products, but because of _____ turnover as well.

22. Students interested in this field should have good coordination, manual dexterity, and the _____ to work under supervision.

23. A die maker is a highly _____ worker who produces specialized tools, _____, and devices used in machines that produce a variety of products.

24. Die makers must acquire a broad knowledge of machining operations and metals and alloys, and _____.

25. A _____- or _____-year apprenticeship program is considered the best way to learn all aspects of tool and die making. This is mostly spent in practical shop training. Some die makers learn the trade through on-the-job training.

26. Employment of tool and die makers is expected to increase more slowly than the average for all occupations through the year 2000 due mainly to the increased use of numerically controlled machine tools and _____ machined products. However, job seekers with the appropriate _____ should find excellent opportunities in this field.

27. The engineering technician may specialize in _____ and development, _____, or as a field representative.

28. In research and development, the _____ technician assists engineers and scientists by building or setting up equipment, preparing and conducting experiments, making _____ of new designs, and calculating or recording the results.

29. Engineering technicians also work as _____ representatives of manufacturers, wholesalers, or retailers. They help customers with complex technical equipment, and may write repair or operating manuals.

30. Employers strongly prefer applicants with formal technical training, preferably with an associate degree in engineering technology. _____ _____, junior or community colleges, colleges or universities, or private vocational-technical schools offer a variety of associate degree programs.

31. Employment of engineering technicians is expected to increase _____ than the average for all occupations through the year 2000; thus, qualified persons should experience very _____ opportunities.

32. Students interested in this field should take as many high school science and math courses as possible. Also, creative _____ are helpful, as well as being able to work as an effective _____ member.

33. The management job family includes the careers that oversee all _____ of an organization. Decisions concerning marketing, production, and management policies stem from such positions as: president, chief executive officers, top executives, and general managers.

34. Examples of careers considered to be at the _____ of the management hierarchy in terms of general managers and _____ executives are police chief, school superintendent, college president, financial institutional president, and department store manager.

35. The general manager, which overlaps into top executive positions, is one career that we will investigate for the _____ job family.

36. General managers are usually responsible for an individual department's _____ within the framework of an organization's many departments. Supervisory managers answer to the general manager concerning their department's _____ status. Likewise, the general manager has someone above his/her level.

37. Most general managers and top executives have a bachelor's degree in liberal arts or _____ _____ and many hold master's degrees.

38. The type of major and degree often relates to what departments one may direct; for example, _____ degree for a general manager of finance. Most top executive and general management positions are filled by _____ qualified and experienced lower level managers.

39. Employment of general managers and top executives is expected to _____ about _____ _____ as the average for all occupations through the year 2000 as businesses grow in number, size, and _____.

40. Persons interested in becoming _____ _____ and top executives must have highly developed personal _____, analytical minds, and intuitive judgment.

Manufacturing Cluster
Activity Sheets - Taking Notes Activity
KEY

Directions: Answer the following statements while viewing the presentation "Manufacturing Cluster Narrative and Slide Description."

1. Manufacturing consists of careers and occupations that develop both raw materials and finished products.
2. The manufacturing cluster is divided into seven job families: scientists, engineers, unskilled laborers, semi-skilled workers, skilled workers, technicans, and management.
3. Physicists find ways to apply laws and theories to problems in nuclear energy, electronics, materials, communications, aerospace technology, and medical instrumentation.
4. Some physicists do the actual basic research, which increases scientific knowledge; however, most physicists work in research and development to create new devices, products, and processes.
5. An example of basic research leading to applied research is in solid-state physics which led to the development of transistors and then to the further development of integrated circuits used in computers.
6. A doctoral degree in physics or a closely related field such as chemistry is almost essential for most jobs in physics. Those with a Ph.D. should experience very good employment opportunities in the 1990s.
7. Students considering a career in physics should have an inquisitive mind, mathematical ability, imagination, and the ability to work on their own.
8. The aerospace engineer designs, develops, tests, and helps produce commercial and military aircraft, missiles, and spacecraft.
9. They may also specialize in one type of aerospace product, such as passenger planes, helicopters, spacecraft, or rockets. Within one of these products the aerospace engineer may further specialize in areas like structural design,

guidance, navigation and control, instrumentation and communication, or production methods.

10. A bachelor's degree in engineering is generally acceptable for beginning engineering careers.

11. Due to the decreased enrollment of engineering students since 1983, the career outlook for employment is expected to increase faster than the average for all occupations through the year 2000.

12. faster growth is expected in the civilian sector of designing and developing quieter and more fuel efficient commercial aircraft, as well as an increased demand for spacecraft, helicopters, and business aircraft.

13. It is important that engineers continue education throughout their careers due to changing technologies. Students interested in this field should be able to work creatively as part of a team, have an analytical mind, and a capacity for detail.

14. The bindery worker is one example of jobs classified in the unskilled laborers job family. It is this person's job to bind printed sheets into finished products such as books or magazines.

15. The process of binding involves the coordination of both machine and person in operations such as cutting, folding, gathering, gluing, stitching, trimming, sewing, wrapping, and other finishing operations.

16. Most bindery workers learn the craft through on - the - job training and acquire knowledge of using machinery and equipment one piece at a time.

17. Employment of bindery workers is expected to grow as fast as the average for all occupations through the year 2000 in response to the demand and expected growth of both commercial printers and book publishers.

18. A plastic-working machine operator generally specializes in the operation of one type of machine that may combine materials, extrude them, and/or mold them. Newly developed materials and processes will bring about a need for more machine operators.

19. There are no specific requirements for this job; however, employers prefer applicants with a high school diploma.

20. Workers receive on-the-job training by observing and assisting other machine operators and advance to more responsible tasks when they have gained experience.

21. Employment of plastic-working machine operators is expected to increase faster than the average for all occupations through the year 2000 due not only to the increasing demand for plastic products, but because of job turnover as well.

22. Students interested in this field should have good coordination, manual dexterity, and the ability to work under supervision.

23. A die maker is a highly skilled worker who produces specialized tools, dies, and devices used in machines that produce a variety of products.

24. Die makers must acquire a broad knowledge of machining operations and metals and alloys, and mathematics.

25. A four- or five-year apprenticeship program is considered the best way to learn all aspects of tool and die making. This is mostly spent in practical shop training. Some die makers learn the trade through on-the-job training.

26. Employment of tool and die makers is expected to increase more slowly than the average for all occupations through the year 2000 due mainly to the increased use of numerically controlled machine tools and imported machined products. However, job seekers with the appropriate skills should find excellent opportunities in this field.

27. The engineering technician may specialize in research and development, manufacturing, or as a field representative.

28. In research and development, the engineering technician assists engineers and scientists by building or setting up equipment, preparing and conducting experiments, making prototypes of new designs, and calculating or recording the results.

29. Engineering technicians also work as field representatives of manufacturers, wholesalers, or retailers. They help customers with complex technical equipment, and may write repair or operating manuals.

30. Employers strongly prefer applicants with formal technical training, preferably with an associate degree in engineering technology. Technical institutes, junior or community colleges, colleges or universities, or private vocational-technical schools offer a variety of associate degree programs.

31. Employment of engineering technicians is expected to increase faster than the average for all occupations through the year 2000; thus, qualified persons should experience very good opportunities.

32. Students interested in this field should take as many high school science and math courses as possible. Also, creative skills are helpful, as well as being able to work as an effective team member.

33. The management job family includes the careers that oversee all operations of an organization. Decisions concerning marketing, production, and management policies stem from such positions as: president, chief executive officers, top executives, and general managers.

34. Examples of careers considered to be at the top of the management hierarchy in terms of general managers and top executives are police chief, school superintendent, college president, financial institutional president, and department store manager.

35. The general manager, which overlaps into top executive positions, is one career that we will investigate for the management job family.

36. General managers are usually responsible for an individual department's activities within the framework of an organization's many departments. Supervisory managers answer to the general manager concerning their department's production status. Likewise, the general manager has someone above his/her level.

37. Most general managers and top executives have a bachelor's degree in liberal arts or business administration and many hold master's degrees.

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38. The type of major and degree often relates to what departments one may direct; for example, accounting degree for a general manager of finance. Most top executive and general management positions are filled by promoting qualified and experienced lower level managers.

39. Employment of general managers and top executives is expected to increase about as fast as the average for all occupations through the year 2000 as businesses grow in number, size, and complexity.

40. Persons interested in becoming general managers and top executives must have highly developed personal skills, analytical minds, and intuitive judgment.

Manufacturing Cluster
Narrative and slide description

Slide No.	
1	Focus/syncronize slide
2	Credit slide - EDTC/TEA
3	Credit slide: "40 Hour Week"
4	Credit slide: "Forty Hour Week (For a Livin')"
5	The Manufacturing careers cluster consists of careers and occupations that develop both raw materials and finished products.
6	The Manufacturing cluster is divided into seven job families: scientists, engineers, unskilled laborers, semi-skilled workers, skilled workers, technicians, and management.
7	The job family of scientists includes the careers of chemists and physicists that attempt to discover the basic principles and interactions of matter and energy.
8	Physicists find ways to apply laws and theories to problems in nuclear energy, electronics, materials, communications, aerospace technology, and medical instrumentation.
9	Some physicists do the actual basic research, which increases scientific knowledge; however, most physicists work in research and development to create new devices, products, and processes.
10	An example of basic research leading to applied research is in solid-state physics which led to the development of transistors and then to the further development of integrated circuits used in computers.
11	A doctoral degree in physics or a closely related field such as chemistry is almost essential for most jobs in physics. Those with a Ph.D. should experience very good employment opportunities in the 1990s.
12	Starting salaries for physicists averaged about $42,500 a year in 1988 with a Ph.D. and $34,700 with a master's degree.
13	Students considering a career in physics should have an inquisitive mind, mathematical ability, imagination, and the ability to work on their own.

14	The engineer's job family concerns itself also with research and development of new products and processes, but in separate specialized careers such as electrical engineer, industrial engineer, ceramic/materials engineer, mechanical engineer, quality control engineer, nuclear engineer, safety engineer, drafter, aerospace engineer, petroleum engineer, civil engineer, and mining engineer.
15	One specialized area of engineering in this job family that we will focus on is that of aerospace technology.
16	The aerospace engineer designs, develops, tests, and helps produce commercial and military aircraft, missiles, and spacecraft.
17	They may also specialize in one type of aerospace product, such as passenger planes, helicopters, spacecraft, or rockets. Within one of these products the aerospace engineer may further specialize in areas like structural design, guidance, navigation and control, instrumentation and communication, or production methods.
18	A bachelor's degree in engineering is generally acceptable for beginning engineering careers.
19	Starting salaries for all types of engineers with a bachelor's degree are substantially higher than starting salaries of college graduates in other fields. Aerospace engineers' entry-level salaries were $28,176 in 1988. With further education or job experience, salaries can range from $29,592 to $87,914.
20	Due to the decreased enrollment of engineering students since 1983, the career outlook for employment is expected to increase faster than the average for all occupations through the year 2000.
21	Faster growth is expected in the civilian sector of designing and developing quieter and more fuel efficient commercial aircraft, as well as an increased demand for spacecraft, helicopters, and business aircraft.
22	It is important that engineers continue education throughout their careers due to changing technologies. Students interested in this field should be able to work creatively as part of a team, have an analytical mind, and a capacity for detail.
23	The job family of unskilled laborers includes such jobs as bench grinder, batter mixer, clay roaster, cotton roll packer, core extruder, and bindery worker.
24	The bindery worker is one example of jobs classified in the unskilled laborers job family. It is this person's job to bind printed sheets into finished products such as books or magazines.
25	The process of binding involves the coordination of both machine and person in operations such as cutting, folding, gathering, gluing, stitching, trimming, sewing, wrapping, and other finishing operations.
26	Most bindery workers learn the craft through on-the-job training and acquire knowledge of using machinery and equipment one piece at a time.
27	Employment of bindery workers is expected to grow as fast as the average for all occupations through the year 2000 in response to the demand and expected growth of both commercial printers and book publishers.

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28	Earnings are based upon wage rates that vary across the country. Inexperienced bindery workers generally start at the minimum wage ($4.25); whereas experienced binders in a union earn an hourly wage of $13.70.
29	Bindery work can be physically strenuous and repetitious much like that of an assembly line job. Students interested in this field of work need to have good finger dexterity and eyesight, as well as having accuracy, patience, and neatness qualities.
30	The semi-skilled worker's job family includes such jobs as grinding mill operator, batch maker/mixer, boring machine operator, coiler operator, table operator, and plastic-working machine operator. Some manufacturing industries are expected to decline, whereas some are expected to expand, such as the plastics industry.
31	A plastic-working machine operator generally specializes in the operation of one type of machine that may combine materials, extrude them, or mold them. Newly developed materials and processes will bring about a need for more machine operators.
32	There are no specific requirements for this job; however, employers prefer applicants with a high school diploma.
33	Workers receive on-the-job training by observing and assisting other machine operators and advance to more responsible tasks when they have gained experience.
34	Employment of plastic-working machine operators is expected to increase faster than the average for all occupations through the year 2000 due not only to increasing demand for plastic products, but because of job turnover as well .
35	Production workers who work in plastic processing plants earn an approximate $8.49 hourly wage.
36	Students interested in this field should have good coordination, manual dexterity, and the ability to work under supervision.
37	The skilled worker's job family includes those jobs and careers that require some technical expertise gained through both the classroom and on-the-job training. Such jobs include tool designer, die maker, tool maker, and pattern maker.
38	A die maker is a highly skilled worker who produces specialized tools, dies, and devices to be used in machines that produce a variety of products .
39	Die makers must acquire a broad knowledge of machining operations, metals and alloys, and mathematics.
40	A four- or five-year apprenticeship program is considered the best way to learn all aspects of tool and die making. This apprenticeship is mostly spent in practical shop training. Some die makers learn the trade through on-the-job training.
41	Employment of tool and die makers is expected to increase more slowly than the average for all occupations through the year 2000 due mainly to the increased use of numerically controlled machine tools and imported machined products. However, job seekers with the appropriate skills should find excellent opportunities in this field.
42	Earnings of most die makers in 1988 ranged between $433 and $680 a week.

43	Those students interested in this field of work should know that it requires a high degree of patience and attention to detail. Good eyesight is essential as well as having a mathematical ability and mechanical aptitude.
44	The technician's job family, as with the job families of scientists and engineers, involves the principles and theories of science, engineering, and mathematics to solve problems in research and development of products and services. Such careers include mathematical technician, mechanical engineering technician, electronics tester, engineering technician, science technician, and industrial engineering technician.
45	The engineering technician may specialize in research and development, manufacturing, or as a field representative.
46	In research and development, the engineering technician assists engineers and scientists by building or setting up equipment, preparing and conducting experiments, making prototypes of new designs, and calculating or recording the results.
47	Engineering technicians who work in manufacturing follow the directions of engineers and supervise production workers. They also devise and run tests to ensure product quality.
48	Engineering technicians also work as field representatives of manufacturers, wholesalers, or retailers. They help customers with complex technical equipment, and may write repair or operating manuals.
49	Employers strongly prefer applicants with formal technical training, preferably with an associate degree in engineering technology. Technical institutes, junior or community colleges, colleges or universities, or private vocational-technical schools offer a variety of associate degree programs.
50	Employment of engineering technicians is expected to increase faster than the average for all occupations through the year 2000; thus, qualified persons should experience very good opportunities.
51	Annual earnings of full-time engineering technicians in 1988 ranged from $12,531 to over $39,000. The median annual earnings were about $25,800.
52	Students interested in this field should take as many high school science and math courses as possible. Also, creative skills are helpful, as well as being able to work as an effective team member.
53	The management job family includes the careers that oversee all operations of an organization. Decisions concerning marketing, production, and management policies stem from such positions as president, chief executive officers, top executives, and general managers.
54	Examples of careers considered to be at the top of the management hierarchy in terms of general managers and top executives are police chief, school superintendent, college president, financial institutional president, and department store manager.
55	The general manager, which overlaps into top executive positions, is one career that we will investigate for the management job family.

56	General managers are usually responsible for an individual department's activities within the framework of an organization's many departments. Supervisory managers answer to the general manager concerning their department's production status. Likewise, the general manager has someone above his/her level.
57	General managers may be required to travel between national, regional, and local offices, as well as represent their organization at conventions and conferences.
58	Most general managers and top executives have a bachelor's degree in liberal arts or business administration and it is common for many to hold master's degrees.
59	The type of major and degree often relates to what departments one may direct; for example, accounting degree for a general manager of finance. Most top executive and general management positions are filled by promoting qualified and experienced lower level managers.
60	The estimated median annual salary of general managers and top executives was around $38,700 in 1988. Many earned well over $52,000. Most also receive additional compensation in the form of bonuses, stock awards, and fringe benefits. Salaries and benefits vary considerably depending on the organization and level of managerial responsibility.
61	Employment of general managers and top executives is expected to increase as fast as the average for all occupations through the year 2000 as businesses grow in number, size, and complexity.
62	Persons interested in becoming general managers and top executives must have highly developed personal skills, analytical minds, and intuitive judgment.
63	Questions concerning careers in any of the seven job families within the Manufacturing cluster need to be investigated, so ask your teacher or school counselor to direct you toward helpful resources.
64	May you find the right path as you march through the field of Career Investigation.

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Audiovisual Package

Instructor's Guide

Careers in the PUBLIC SERVICES Cluster

CI-123-AVS

BEST COPY AVAILABLE

CAREERS IN THE PUBLIC SERVICES CLUSTER

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Photographer: Glenn Fawcett

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To ensure educational equity, this material has been reviewed to eliminate bias or stereotyping.

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Introduction

In recognizing the importance of students' acquiring a **realistic** perception of career opportunities, this slide/tape presentation was developed as a result of a proposal funded by the Texas Education Agency to the Educational Development and Training Center at East Texas State University. To enhance its applicability for use in vocational courses and to provide relevancy for instruction in academic courses, the United States Office of Education's (USOE) career classification system has been used as the basis for determining the careers depicted in this presentation. With both students' needs and interests in mind, this presentation was designed with the flexibility required for use as a supplementary and/or primary teaching aid.

Included in each slide/tape package are a set of full-color slides, a cassette tape in both English and Spanish narrations, and the instructor's guide. Each instructor's guide provides general instruction for use by the students, the English version of the narrative portion of the presentation, and an activity sheet which will assist students in determining pertinent occupational information presented.

This slide/tape package is designed to complement the information included in the *Career Opportunities Instructional Guide* available from the Educational Development and Training Center at East Texas State University.

Mary W. Hendrix
Director

General Instructions

Equipment Needed

Before using this presentation, make certain that arrangements have been made to have the following equipment available for use: a slide projector, a projection screen, and a cassette recorder/player.

Preparations Before Class

Preview the presentation to ensure that the slide tray is loaded correctly and that all equipment is working properly.

Determine at what point in your instructional delivery the presentation can be used most effectively.

Plan a short but relevant introduction which will prepare students for learning.

Inform students of expected outcomes which should be achieved from viewing the presentation.

Allot sufficient time to show the presentation in its entirety.

Reproduce copies of the Activity Sheet.

Procedures for Group Instruction

Choose a point in the lesson where the slide/tape presentation will have the greatest impact.

Arrange physical conditions, such as room darkening and screen, and place students so that all can see and hear in comfort and without distraction.

After showing the slide/tape presentation, always discuss the information presented with your students; emphasize information needed to master selected outcomes/objectives.

If necessary, after checking for understanding, show the presentation or parts of it again to reinforce problem areas of learning.

Procedures for Individualized Instruction

Make sure adequate space is available and equipment is working properly.

Demonstrate the proper procedure for using the equipment.

Allow students to view the presentation as many times as necessary to understand the information presented.

Instructions for Using Slides and Cassette Tapes

Pick up each slide by its frame so that you do not touch the film.

Arrange the slides in the slide tray in sequential order with the slide number in the upper right corner facing you.

Insert the cassette tape in the recorder/player.

Rewind the cassette tape.

Turn on the slide projector; the first slide should be projected on the screen.

Start the cassette player.

Note: Please notify the Educational Development and Training Center if any defects exist in the quality of the cassette tape.

Depress the advance button at the sound of the "beep".

Instructions for Using the Activity Sheet

The Activity Sheet—Taking Notes is provided as a convenient means of taking notes during the slide/tape presentation. The answers to the questions presented will be useful in assisting students in obtaining an awareness of career opportunities classified in the Public Services cluster and in ascertaining pertinent occupational information. For your convenience, an answer key is provided.

Script

The English version of the narrative portion of the presentation is included in written form.

Public Services Cluster
Activity Sheet — Taking Notes Activity

Directions: Answer the following statements while viewing the presentation "Public Services Cluster Narrative and Slide Description."

1. The Public Services cluster is a group of careers and occupations involved in benefiting society as a whole through many services supported mainly by _____. The eleven job families comprising this cluster are labor affairs, public transportation, parks and recreation, protective services, _____ _____, _____, urban development, administrative and regulatory services, social services, rehabilitation, correction, public utilities, and _____ _____.

2. Compliance officers may also be named inspectors or investigators. The officer works in areas such as _____, safety, _____, immigration, licensing, interstate commerce, and international _____.

3. The main task of a compliance officer, whether he or she is an aviation safety inspector, immigration inspector, or one of the many other types of compliance officers, is to enforce the _____, regulations, policies, and procedures that _____ the _____.

4. The type of educational _____ required to become a compliance officer depends upon the area of specialization. Generally, applicants with college training are preferred. All _____ and _____ are trained in applicable laws and inspection procedures through a combination of classroom and on-the-job training.

5. Employment of _____ _____ is expected to increase as _____ as the average for all occupations through the year 2000.

6. People interested in entering this _____ should be responsible, like detail work, be neat and personable and able to express themselves well orally and in _____.

7. Public transportation has grown tremendously, thus creating _____ for more workers and advanced technology.

8. The _____ _____ is an example of an occupation in this job family that we will investigate.

9. There are three types of bus drivers: the intercity bus driver _____ people between regions of the state and country; the local transit bus driver transports people within a metropolitan area; and the _____ _____ _____ transports students to and from school and related events.

10. A bus driver's day is run by the clock. Time schedules must be closely maintained; therefore, the driver must compensate for both heavy and light traffic, as well as _____ _____.

11. Bus driver _____ are established by State and Federal regulations. Drivers must obtain a Commercial Driver's License by passing both _____ and driving exams.

12. Many employers prefer high school _____ and require a physical examination and a written test of ability to follow complex bus schedules.

13. Employment is expected to _____ as fast as the average for all jobs through the year _____.

14. The parks and recreation job family develops and regulates _____ recreational areas.

15. Many of the occupations that are classified in this job family can also be classified in the Hospitality and Recreation cluster, Agribusiness and Natural Resource cluster, and _____ cluster.

16. Recreation workers work in a variety of positions, most of which are _____-_____ and seasonal. Many of these part-time jobs are filled by _____, college students, and senior citizens.

17. Advancement to administrator or supervisor in the _____ field requires a bachelor's degree and experience. Some positions in this field are filled by _____ _____ graduates, while others are filled by per-

sons with an associate degree in parks and recreation, social work, _____ education, leisure studies, or therapeutic recreation.

18. Continued expansion of the recreation field will result from increasing interest in fitness and _____ and a growing number of older adults who also have more _____ time. Therefore, employment of recreation workers is expected to _____ as fast as the average for all occupations through the year 2000.

19. Workers in recreation careers are outgoing, good at _____ others, and sensitive to the needs of others. Other qualities include good health, physical stamina, creativity, and _____ skills.

20. One career that is common to all of us is that of a _____ _____. This particular career affects us daily in many ways. What safety would we have in the home, community, and on the road without the officers in blue to represent _____ and _____?

21. There are many career _____ for police officers within their career _____. Examples include: civilian police officers, private security personnel, detectives of various types, special agents in various undercover work, state police officers, or highway patrol officers.

22. Candidates for _____ _____ must meet rigorous physical and personal qualifications, as well as show top performance in written examinations.

23. Job outlook for _____ is expected to increase as fast as the average for all _____ through the year 2000.

24. The opportunity for public service through police work is attractive to many; therefore, the number of qualified _____ generally exceeds the number of job openings. Candidates with a well-rounded _____ and college training in law enforcement should have the best opportunities.

25. The mail carrier usually delivers and collects mail on an established route, so he or she becomes familiar with one area. The carrier may cover the route on foot, by vehicle, or a _____ of both.

26. Most carriers begin work early in the morning—some begin as early as 4 a.m., which means they get off early in the _____. Carriers work out-

side in all types of weather conditions and must lift heavy sacks of mail which may weigh up to _____ lbs.

27. To qualify as an applicant, one must do well on a _____ examination that measures speed and accuracy and pass a _____ examination as well.

28. Employment of carriers is expected to grow as fast as the average for all occupations and _____ for entry-level positions is expected to remain keen.

29. School counselors use interviews, counseling sessions, tests, and other tools to help students identify and determine their _____, _____, and _____ in relation to both academic and career options.

30. Students may receive many benefits and services from their school counselor(s) such as: job finding _____ and placement assistance for full-time, part-time, and _____ jobs; information covering entrance requirements and financial aid for post-high school education at colleges or technical schools; and personal or group counseling dealing with social, behavioral, and personal problems.

31. Secondary _____ _____ focus more on vocational and academic counseling, whereas _____ school counselors do more social and personal counseling.

32. Most states require public school counselors to have both counseling and teaching certificates, a master's degree in counseling and ____ to ____ years of teaching experience.

33. Employment of school counselors is expected to grow _____ than the average due to increasing secondary school enrollments and expanding counseling responsibilities concerning issues such as substance abuse, crisis intervention, and _____-_____ skills.

34. The urban and regional planner is often called the community or _____ _____. Planners help local city officials make decisions on social, _____, and environmental problems.

35. Generally, the _____ _____ job is to develop a city's overall plan of where to build neighborhoods, schools, and businesses based upon forecasts of population _____ and _____.

36. Most entry jobs in Federal, State, and Local _____ agencies require 2 years of graduate study in _____ or regional planning. Persons having a _____ degree in city planning, architecture, or engineering may also qualify for beginning positions.

37. The job outlook of _____ and _____ planners is expected to grow as fast as the average for all occupations through the year 2000.

38. The city manager is usually _____ by the city council. It is a position found mostly in medium- and large-sized cities.

39. It is the _____ _____ responsibility to appoint the department heads and staffs that oversee a city's operation in areas of tax collection, law enforcement, maintenance of public works, and preparation of the annual budget.

40. City managers generally obtain a _____ _____ in public administration. After several years of experience as assistants in government departments learning the many aspects of city management, they may be hired to manage a town.

41. Small increases in employment may be _____ as growing communities become independent cities and towns, as well as unpaid positions become salaried offices in _____ areas.

42. The careers in _____ _____ help individuals, families, and groups cope with problems of every description from specialization in child or adult services to mental health care and elderly services. Social workers will find _____ employment _____ through the year 2000.

43. A bachelor's degree is the minimum _____ to work in this field; however, more people are obtaining a _____ degree in social work—known as an M.S.W.

44. The water treatment plant operator _____ water so that it is safe to drink and the waste water treatment plant operator _____ harmful domestic and industrial pollution from wastewater.

45. Operators learn their _____ on the job and a high school _____ is generally required. Employers prefer persons who have had high school courses in

chemistry and biology. Employment for both types of operators is _____ to grow as fast as the average for all jobs through the year 2000.

46. The sanitarian, also known as an environmental health inspector, ensures that _____, _____, and _____ meet government standards.

47. The sanitarian may _____ in a particular type of health inspection, such as milk and dairy products, food sanitation, waste control, air pollution, water _____, institutional sanitation, or occupational health.

48. A _____ degree in environmental health or in physical or biological science is required in many states and in most states, _____ are licensed by examining boards. _____ of inspectors is expected to increase about as fast as for all occupations through the year 2000.

Public Services Cluster
Activity Sheet — Taking Notes Activity
KEY

Directions: Answer the following statements while viewing the presentation "Public Services Cluster Narrative and Slide Description."

1. The Public Services cluster is a group of careers and occupations involved in benefiting society as a whole through many services supported mainly by taxes. The eleven job families comprising this cluster are labor affairs, public transportation, parks and recreation, protective services, postal services, education, urban development, administrative and regulatory services, social services, rehabilitation, correction, public utilities, and public health.

2. Compliance officers may also be named inspectors or investigators. The officer works in areas such as health, safety, food, immigration, licensing, interstate commerce, and international trade.

3. The main task of a compliance officer, whether he or she is an aviation safety inspector, immigration inspector, or one of the many other types of compliance officers, is to enforce the laws, regulations, policies, and procedures that protect the public.

4. The type of educational training required to become a compliance officer depends upon the area of specialization. Generally, applicants with college training are preferred. All inspectors and officers are trained in applicable laws and inspection procedures through a combination of classroom and on-the-job training.

5. Employment of compliance officers is expected to increase as fast as the average for all occupations through the year 2000.

6. People interested in entering this occupation should be responsible, like detail work, be neat and personable and able to express themselves well orally and in writing.

7. Public transportation has grown tremendously, thus creating demand for more workers and advanced technology.

8. The bus driver is an example of an occupation in this job family that we will investigate.

9. There are three types of bus drivers: the intercity bus driver transports people between regions of the state and country; the local transit bus driver transports people within a metropolitan area; and the school bus driver transports students to and from school and related events.

10. A bus driver's day is run by the clock. Time schedules must be closely maintained; therefore, the driver must compensate for both heavy and light traffic, as well as weather conditions.

11. Bus driver qualifications are established by State and Federal regulations. Drivers must obtain a Commercial Driver's License by passing both written and driving exams.

12. Many employers prefer high school graduates and require a physical examination and a written test of ability to follow complex bus schedules.

13. Employment is expected to increase as fast as the average for all jobs through the year 2000.

14. The parks and recreation job family develops and regulates public recreational areas.

15. Many of the occupations that are classified in this job family can also be classified in the Hospitality and Recreation cluster, Agribusiness and Natural Resource cluster, and Environment cluster.

16. Recreation workers work in a variety of positions, most of which are part-time and seasonal. Many of these part-time jobs are filled by teachers, college students, and senior citizens.

17. Advancement to administrator or supervisor in the recreation field requires a bachelor's degree and experience. Some positions in this field are filled by high school graduates, while others are filled by persons

with an associate degree in parks and recreation, social work, physical education, leisure studies, or therapeutic recreation.

18. Continued expansion of the recreation field will result from increasing interest in fitness and health and a growing number of older adults who also have more leisure time. Therefore, employment of recreation workers is expected to grow as fast as the average for all occupations through the year 2000.

19. Workers in recreation careers are outgoing, good at motivating others, and sensitive to the needs of others. Other qualities include good health, physical stamina, creativity, and leadership skills.

20. One career that is common to all of us is that of a police officer. This particular career affects us daily in many ways. What safety would we have in the home, community, and on the road without the officers in blue to represent law and order?

21. There are many career paths for police officers within their career field. Examples include: civilian police officers, private security personnel, detectives of various types, special agents in various undercover work, state police officers, or highway patrol officers.

22. Candidates for officer training must meet rigorous physical and personal qualifications, as well as show top performance in written examinations.

23. Job outlook for employment is expected to increase as fast as the average for all occupations through the year 2000.

24. The opportunity for public service through police work is attractive to many; therefore, the number of qualified candidates generally exceeds the number of job openings. Candidates with a well-rounded education and college training in law enforcement should have the best opportunities.

25. The mail carrier usually delivers and collects mail on an established route, so he or she becomes familiar with one area. The carrier may cover the route on foot, by vehicle, or a combination of both.

26. Most carriers begin work early in the morning—some begin as early as 4 a.m., which means they get off early in the afternoon. Carriers work out-

side in all types of weather conditions and must lift heavy sacks of mail which may weigh up to 70 lbs.

27. To qualify as an applicant, one must do well on a written examination that measures speed and accuracy and pass a physical examination as well.

28. Employment of carriers is expected to grow as fast as the average for all occupations and competition for entry-level positions is expected to remain keen.

29. School counselors use interviews, counseling sessions, tests, and other tools to help students identify and determine their interests, abilities, and aptitude in relation to both academic and career options.

30. Students may receive many benefits and services from their school counselor(s) such as: job finding skills and placement assistance for full-time, part-time, and summer jobs; information covering entrance requirements and financial aid for post-high school education at colleges or technical schools; and personal or group counseling dealing with social, behavioral, and personal problems.

31. Secondary school counselors focus more on vocational and academic counseling, whereas elementary school counselors do more social and personal counseling.

32. Most states require public school counselors to have both counseling and teaching certificates, a master's degree in counseling and 2 to 5 years of teaching experience.

33. Employment of school counselors is expected to grow faster than the average due to increasing secondary school enrollments and expanding counseling responsibilities concerning issues such as substance abuse, crisis intervention, and decision-making skills.

34. The urban and regional planner is often called the community or city planner. Planners help local city officials make decisions on social, economic, and environmental problems.

35. Generally, the urban planner's job is to develop a city's overall plan of where to build neighborhoods, schools, and businesses based upon forecasts of population growth and demand.

36. Most entry jobs in Federal, State, and Local government agencies require 2 years of graduate study in urban or regional planning. Persons having a bachelor's degree in city planning, architecture, or engineering may also qualify for beginning positions.

37. The job outlook of urban and regional planners is expected to grow as fast as the average for all occupations through the year 2000.

38. The city manager is usually appointed by the city council. It is a position found mostly in medium- and large-sized cities.

39. It is the city manager's responsibility to appoint the department heads and staffs that oversee a city's operation in areas of tax collection, law enforcement, maintenance of public works, and preparation of the annual budget.

40. City managers generally obtain a master's degree in public administration. After several years of experience as assistants in government departments learning the many aspects of city management, they may be hired to manage a town.

41. Small increases in employment may be expected as growing communities become independent cities and towns, as well as unpaid positions become salaried offices in regional areas.

42. The careers in social work help individuals, families, and groups cope with problems of every description from specialization in child or adult services to mental health care and elderly services. Social workers will find great employment opportunities through the year 2000.

43. A bachelor's degree is the minimum requirement to work in this field; however, more people are obtaining a master's degree in social work—known as an M.S.W.

44. The water treatment plant operator treats water so that it is safe to drink and the waste water treatment plant operator removes harmful domestic and industrial pollution from wastewater.

45. Operators learn their skills on the job and a high school diploma is generally required. Employers prefer persons who have had high school courses in

chemistry and biology. Employment for both types of operators is expected to grow as fast as the average for all jobs through the year 2000.

46. The sanitarian, also known as an environmental health inspector, ensures that food, water, and air meet government standards.

47. The sanitarian may specialize in a particular type of health inspection, such as milk and dairy products, food sanitation, waste control, air pollution, water pollution, institutional sanitation, or occupational health.

48. A bachelor's degree in environmental health or in physical or biological science is required in many states and in most states, sanitarians are licensed by examining boards. Employment of inspectors is expected to increase about as fast as for all occupations through the year 2000.

Public Services Cluster
Narrative and slide description

Slide No.	
1	Focus/syncronize slide
2	Credit slide—EDTC/TEA
3	Credit slide—"40 Hour Week"
4	Credit slide—"Forty Hour Week (For a Livin')"
5	The Public Services cluster is a group of careers and occupations involved in benefiting society as a whole through many services supported mainly by taxes. The eleven job families comprising this cluster are labor affairs, public transportation, parks and recreation, protective services, postal services, education, urban development, administrative and regulatory services, social services including rehabilitation and correction, public utilities, and public health.
6	The labor affairs job family includes careers that provide services to labor, such as State Employment Commission (SEC) employee, safety engineer, compliance officer, time study engineer, and labor union business agent.
7	The compliance officer is an example of a career classified in this job family that we will investigate.
8	Compliance officers may also be named inspectors or investigators. The officer works in areas such as health, safety, food, immigration, licensing, interstate commerce, and international trade.
9	The main task of a compliance officer, whether he or she is an aviation safety inspector, immigration inspector, or one of the many other types of compliance officers, is to enforce the laws, regulations, policies, and procedures that protect the public.
10	For example, the compliance officer may work as a health inspector to ensure compliance with public health and safety regulators governing food, drugs, cosmetics, and other consumer products. Or the compliance officer may work as a postal inspector to observe the functioning of the postal system and recommend improvements.
11	The type of educational training required to become a compliance officer depends upon the area of specialization. Generally, applicants with college training are preferred. All inspectors and officers are trained in applicable laws and inspection procedures through a combination of classroom and on-the-job training.
12	Employment of compliance officers is expected to increase as fast as the average for all occupations through the year 2000.

13	Most starting Federal salaries were around $15,700 a year in 1989 and the average annual salary in 1988 varied substantially from $20,100 to $55,800 - depending upon the nature of the inspection or compliance activity.
14	People interested in entering this occupation should be responsible, like detail work, be neat and personable and able to express themselves well orally and in writing.
15	The public transportation job family includes occupations that develop and regulate public highways, bridges, waterways, and other means of transportation. Such jobs would include: civil engineer, traffic agent, highway/road maintenance worker, turnpike and tollbridge collector, bus driver, and train dispatcher.
16	Public transportation has grown tremendously, thus creating demand for more workers and advanced technology.
17	The bus driver is an example of an occupation in this job family that we will investigate.
18	There are three types of bus drivers: the intercity bus driver transports people between regions of the state and country; the local transit bus driver transports people within a metropolitan area; and the school bus driver transports students to and from school and related events.
19	A bus driver's day is run by the clock. Time schedules must be closely maintained; therefore, the driver must compensate for both heavy and light traffic, as well as weather conditions.
20	Bus driver qualifications are established by State and Federal regulations. Drivers must obtain a Commercial Driver's License by passing both written and driving exams.
21	Many employers prefer high school graduates and require a physical examination and a written test of ability to follow complex bus schedules.
22	Employment is expected to increase as fast as the average for all jobs through the year 2000.
23	The average weekly earnings of full-time bus drivers were $360 in 1988. The average rate for public school bus drivers was $8.78 an hour during the 1988-89 school year.
24	The parks and recreation job family develops and regulates public recreational areas.
25	Many of the occupations that are classified in this job family can also be classified in the Hospitality and Recreation cluster, Agribusiness and Natural Resource cluster, and Environment cluster.
26	Examples of occupations classified in the parks and recreation job family include campground caretaker, fire patroller, forester, recreation worker, park naturalist, park ranger, and range manager.
27	Recreation workers work in a variety of positions, most of which are part-time and seasonal. Many of these part-time jobs are filled by teachers, college students, and senior citizens.

28	Advancement to administrator or supervisor in the recreation field requires a bachelor's degree and experience. Some positions in this field are filled by high school graduates, while others are filled by persons with an associate degree in parks and recreation, social work, physical education, leisure studies, or therapeutic recreation.
29	Recreational needs of special populations such as older adults, the terminally sick, and disabled are given much attention.
30	Continued expansion of the recreation field will result from increasing interest in fitness and health and a growing number of older adults who also have more leisure time. Therefore, employment of recreation workers is expected to grow as fast as the average for all occupations through the year 2000.
31	The starting salary for recreation workers in the Federal government was about $15,700 a year in 1989.
32	Workers in recreation careers are outgoing, good at motivating others, and sensitive to the needs of others. Other qualities include good health, physical stamina, creativity, and leadership skills.
33	The protective services job family is comprised of the careers that preserve national freedom and protect individual rights; such as FBI special agent, police officer, fire fighter, military, and civil defense.
34	One career that is common to all of us is that of a police officer. This particular career affects us daily in many ways. What safety would we have in the home, community, and on the road without the officers in blue to represent law and order?
35	There are many career paths for police officers within their career field. Examples include: civilian police officers, private security personnel, detectives of various types, special agents in various undercover work, state police officers, or highway patrol officers.
36	Patrol police officers attempt to become thoroughly familiar with their assigned area. They may be on foot, ride in a patrol car or on a motorcycle, bicycle, or horse.
37	Candidates for officer training must meet rigorous physical and personal qualifications, as well as show top performance in written examinations.
38	Today, more applicants are encouraged to take some college courses in law enforcement and other helpful related areas, such as psychology, counseling, public relations, and business law.
39	Job outlook for employment is expected to increase as fast as the average for all occupations through the year 2000.
40	Police officers in 1988 started at an average of $20,600 a year and depending on the area of employment, salaries ranged from $17,500 to $35,300.
41	The opportunity for public service through police work is attractive to many; therefore, the number of qualified candidates generally exceeds the number of job openings. Candidates with a well-rounded education and college training in law enforcement should have the best opportunities.

42	The postal services job family includes the occupations that transport and deliver the mail, such as postmaster, mailhandler, clerk, carrier, and special delivery.
43	The mail carrier usually delivers and collects mail on an established route, so he or she becomes familiar with one area. The carrier may cover the route on foot, by vehicle, or a combination of both.
44	Most carriers begin work early in the morning—some begin as early as 4 a.m., which means they get off early in the afternoon. Carriers work outside in all types of weather conditions and must lift heavy sacks of mail which may weigh up to 70 lbs.
45	To qualify as an applicant, one must do well on a written examination that measures speed and accuracy and pass a physical examination as well.
46	Employment of carriers is expected to grow as fast as the average for all occupations and competition for entry-level positions is expected to remain keen.
47	Base pay for beginning full-time carriers in early 1989 was $22,250 a year and experienced, full-time city carriers earned an average salary of $28,056 a year. All postal workers receive a variety of employer-provided benefits.
48	The education job family is the group of careers that trains and educates society's members. Such careers include kindergarten and elementary school teacher, secondary school teacher, college and university teacher, school counselor, and librarian.
49	School counselors use interviews, counseling sessions, tests, and other tools to help students identify and determine their interests, abilities, and aptitude in relation to both academic and career options.
50	Students may receive many benefits and services from their school counselor(s) such as: job finding skills and placement assistance for full-time, part-time, and summer jobs; information covering entrance requirements and financial aid for post-high school education at colleges or technical schools; and personal or group counseling dealing with social, behavioral, and personal problems.
51	Secondary school counselors focus more on vocational and academic counseling, whereas elementary school counselors do more social and personal counseling.
52	Most states require public school counselors to have both counseling and teaching certificates, a master's degree in counseling and 2 to 5 years of teaching experience.
53	Employment of school counselors is expected to grow faster than the average due to increasing secondary school enrollments and expanding counseling responsibilities concerning issues such as substance abuse, crisis intervention, and decision-making skills.
54	The average salary of school counselors in the 1988-89 academic year was $34,244 and additional income may be earned by working summers in the school system.

55	The urban development job family is the group of careers involved in studying and solving problems of cities. Examples of such careers include urban and regional planner, anthropologist, geographer, political scientist, and sociologist.
56	The urban and regional planner is often called the community or city planner. Planners help local city officials make decisions on social, economic, and environmental problems.
57	Generally, the urban planner's job is to develop a city's overall plan of where to build neighborhoods, schools, and businesses based upon forecasts of population growth and demand.
58	Most entry jobs in Federal, State, and Local government agencies require 2 years of graduate study in urban or regional planning. Persons having a bachelor's degree in city planning, architecture, or engineering may also qualify for beginning positions.
59	The job outlook of urban and regional planners is expected to grow as fast as the average for all occupations through the year 2000.
60	Earnings in 1987 for urban and regional planners ranged from a starting average salary of $23,800 a year to over $41,000 annually with over 10 years of experience.
61	The administration and regulatory services job family includes those jobs and careers involved in licensing, regulating, policy making, and record keeping. Such careers include the city mayor, city manager, tax-accessor collector, civil engineer, bank officer, and city council member.
62	The city manager is usually appointed by the city council. It is a position found mostly in medium- and large-sized cities.
63	It is the city manager's responsibility to appoint the department heads and staffs that oversee a city's operation in areas of tax collection, law enforcement, maintenance of public works, and preparation of the annual budget.
64	City managers generally obtain a master's degree in public administration. After several years of experience as assistants in government departments learning the many aspects of city management, they may be hired to manage a town.
65	In 1988 salaries ranged from $30,049 in towns with fewer than 2,500 residents to $109,017 in cities with a population of 500,000 to 1 million.
66	Small increases in employment may be expected as growing communities become independent cities and towns, as well as unpaid positions become salaried offices in rural areas.
67	The job family of social services, rehabilitation, and correction is comprised of those occupations that provide services to citizens, usually in the areas of welfare, human development, mental health, and rehabilitation.
68	At many times, the careers in this job family must work together to provide the public with many services such as social work, family service, child welfare, social aid hospitals, public welfare agencies, mental health centers and hospitals, probation and parole work, court law and government law.

69	The careers in social work help individuals, families, and groups cope with problems of every description from specialization in child or adult services to mental health care and elderly services.
70	Social workers will find great employment opportunities through the year 2000 and can expect to earn anywhere from $12,600 to over $38,400 a year. Median annual earnings in 1988 were $22,000.
71	A bachelor's degree is the minimum requirement to work in this field; however, more people are obtaining a master's degree in social work—known as an M.S.W.
72	The public utilities job family includes the group of careers involved in producing and distributing water, electricity, and gas.
73	We will focus on the jobs of water treatment plant operator and waste water treatment plant operator, because both operate the control of our essential natural resource.
74	The water treatment plant operator treats water so that it is safe to drink and the waste water treatment plant operator removes harmful domestic and industrial pollution from wastewater.
75	Operators learn their skills on the job and a high school diploma is generally required. Employers prefer persons who have had high school courses in chemistry and biology.
76	Employment for both types of operators is expected to grow as fast as the average for all jobs through the year 2000 and annual salaries averaged $21,300 in 1988.
77	The public health job family is involved in disease control and prevention, usually through public facilities. Such careers include county health officer, sanitarian, and field health officer.
78	The sanitarian, also known as an environmental health inspector, ensures that food, water, and air meet government standards.
79	The sanitarian may specialize in a particular type of health inspection, such as milk and dairy products, food sanitation, waste control, air pollution, water pollution, institutional sanitation, or occupational health.
80	A bachelor's degree in environmental health or in physical or biological science is required in many states and in most states, sanitarians are licensed by examining boards.
81	Employment of inspectors is expected to increase about as fast as for all occupations through the year 2000. The average annual salary in 1988 varied substantially in the Federal government from $20,100 to $55,800 with an annual earnings average of $36,900 for environmental protection specialists.
82	May you find gratifying work in your future. Take care of business and ask your teacher or counselor to help you now in narrowing career options.

TX91CD10

Audiovisual Package

Instructor's Guide

Careers in the TRANSPORTATION Cluster

CI-124-AVS

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CAREERS IN THE TRANSPORTATION CLUSTER

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To ensure educational equity, this material has been reviewed to eliminate bias or stereotyping.

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Introduction

In recognizing the importance of students' acquiring a **realistic** perception of career opportunities, this slide/tape presentation was developed as a result of a proposal funded by the Texas Education Agency to the Educational Development and Training Center at East Texas State University. To enhance its applicability for use in vocational courses and to provide relevancy for instruction in academic courses, the United States Office of Education's (USOE) career classification system has been used as the basis for determining the careers depicted in this presentation. With both students' needs and interests in mind, this presentation was designed with the flexibility required for use as a supplementary and/or primary teaching aid.

Included in each slide/tape package are a set of full-color slides, a cassette tape in both English and Spanish narrations, and the instructor's guide. Each instructor's guide provides general instruction for use by the students, the English version of the narrative portion of the presentation, and an activity sheet which will assist students in determining pertinent occupational information presented.

This slide/tape package is designed to complement the information included in the *Career Opportunities Instructional Guide* available from the Educational Development and Training Center at East Texas State University.

Mary W. Hendrix
Director

General Instructions

Equipment Needed

Before using this presentation, make certain that arrangements have been made to have the following equipment available for use: a slide projector, a projection screen, and a cassette recorder/player.

Preparations Before Class

Preview the presentation to ensure that the slide tray is loaded correctly and that all equipment is working properly.

Determine at what point in your instructional delivery the presentation can be used most effectively.

Plan a short but relevant introduction which will prepare students for learning.

Inform students of expected outcomes which should be achieved from viewing the presentation.

Allot sufficient time to show the presentation in its entirety.

Reproduce copies of the Activity Sheet.

Procedures for Group Instruction

Choose a point in the lesson where the slide/tape presentation will have the greatest impact.

Arrange physical conditions, such as room darkening and screen, and place students so that all can see and hear in comfort and without distraction.

After showing the slide/tape presentation, always discuss the information presented with your students; emphasize information needed to master selected outcomes/objectives.

If necessary, after checking for understanding, show the presentation or parts of it again to reinforce problem areas of learning.

Procedures for Individualized Instruction

Make sure adequate space is available and equipment is working properly.

Demonstrate the proper procedure for using the equipment.

Allow students to view the presentation as many times as necessary to understand the information presented.

Instructions for Using Slides and Cassette Tapes

Pick up each slide by its frame so that you do not touch the film.

Arrange the slides in the slide tray in sequential order with the slide number in the upper right corner facing you.

Insert the cassette tape in the recorder/player.

Rewind the cassette tape.

Turn on the slide projector; the first slide should be projected on the screen.

Start the cassette player.

Note: Please notify the Educational Development and Training Center if any defects exist in the quality of the cassette tape.

Depress the advance button at the sound of the "beep".

Instructions for Using the Activity Sheet

The Activity Sheet—Taking Notes is provided as a convenient means of taking notes during the slide/tape presentation. The answers to the questions presented will be useful in assisting students in obtaining an awareness of career opportunities classified in the Transportation cluster and in ascertaining pertinent occupational information. For your convenience, an answer key is provided.

Script

The English version of the narrative portion of the presentation is included in written form.

Transportation Cluster
Activity Sheet - Note Taking Activity

Directions: Answer the following statements while viewing the presentation "Transportation Cluster Narrative and Slide Description."

1. The Transportation cluster is a group of occupations that transports _____ and _____ from one place to another.
2. There are six job families that make up the Transportation cluster. They are airborne transport, pipeline transport, _____ _____, highway transport, _____ _____, and rail transport.
3. A reservations agent or _____ _____ gathers information to help clients make travel arrangements.
4. Because reservations agents deal directly with the public, a good appearance and pleasant personality are essential, as are problem-solving _____ and good interpersonal _____.
5. Hiring requirements vary from industry to _____ and a high school diploma is usually required. Applicants who have completed some college coursework are preferred in the airline industry.
6. Many reservation agents learn their skills through formal company programs. Those working for the _____ have intense training in a classroom first. Then, they work under supervisors for several weeks, are tested daily, and _____ is usually assigned.
7. Employment opportunities for reservation agents and travel agents are expected to increase much _____ than the average for all occupations through the year 2000 due to high turnover and increasing customer _____.
8. The petroleum engineer explores and drills for _____ and natural _____ and usually supervises drilling operations.
9. When the drilling is successful, the _____ engineer determines the most efficient methods to extract the petroleum from the reservoir.

10. Only a small proportion of the oil and gas will flow under _____ forces. The engineer develops recovery methods to enhance production.

11. Employment opportunities here are expected to grow more _____ than the average for all occupations through the year 2000. However, an _____ increase is expected due to openings made to replace engineers transferring and retiring.

12. The National Aeronautics and Space Administration, known as _____, has a need for both pilot astronaut and mission specialist astronaut candidates.

13. Mission specialist astronauts have _____ in the areas of crew activity planning, consumables usage, and experiment and payload operations.

14. Currently, the Space Shuttle Orbiter, consisting of _____ crew members, can last up to 30 days on missions. The crew members include the commander, the pilot, and three _____ _____.

15. Mission tasks include the servicing of existing satellites, operations of specialized laboratories, and will eventually include the construction and servicing of a permanent _____ _____.

16. Requirements for a mission specialist include either a _____ degree in engineering, biological sciences, physical sciences, or mathematics with three years of related work, or a _____ degee with one year of experience.

17. Every _____ years NASA recruits new candidates. Once the space station is in operation, there may be an overall _____ increase in the space transportation industry.

18. Almost everything you purchase as a _____ is, at some point, transported by _____. Goods may be transported by more than one type of truck driver, such as long-distance truck driver, local truck driver, vending machine sales driver, and store contract delivery driver.

19. Some long-distance truck drivers work _____ days a year away from home. Local truck drivers have fluctuating shifts, but usually work within their home area.

20. The U.S. Department of Transportation requires all interstate truck drivers be at least _____ years old, pass a physical examination, and take a _____ examination on the Motor Carrier Safety Regulations.

21. Employment is expected to increase as fast as the _____ for all occupations through the year _____ as the economy grows and freight hauled by trucks increases.

22. Most local drivers are paid by the hour and earn overtime pay beyond 40 hours a week. Long-distance drivers are generally paid by the _____ and sales drivers receive a commission on their _____ along with an hourly wage.

23. _____ help navigate waterborne craft, particularly on inland waters, such as rivers, canals, and harbors.

24. Deckhands generally learn their _____ on the job and they are eligible to take a Coast Guard exam to qualify as a mate, pilot, or captain once _____ and knowledge are gained.

25. Overall, employment of water transportation occupations is projected to _____ through the year 2000, but this decline will vary by sector.

26. Locomotive engineers are among the most highly _____ workers on the railroad. They _____ cargo and passengers between stations.

27. Because trains react differently to acceleration, braking, and curves, depending on the number of cars and the ratio of empty to loaded cars, the locomotive engineer must be constantly aware of both the _____ and _____ conditions.

28. Railroad companies prefer applicants for engineering jobs be at least 21 years old and have a high school diploma. Beginning engineers usually undergo a ____-month training program that includes both _____ and on-the-job instruction.

29. Employment opportunities are expected to be better for locomotive and yard _____ and subway operators than for other railroad transportation workers. However, a steady _____ in job openings is expected to continue through the year 2000.

30. We have investigated a few careers in the _____ business. Keep in mind that people will continue to travel and purchase products that must be delivered. So, while there may be some decreases in employment opportunities, the transportation industry offers services that will always be in _____.

Transportation Cluster
Activity Sheet - Note Taking Activity
KEY

Directions: Answer the following statements while viewing the presentation "Transportation Cluster Narrative and Slide Description."

1. The Transportation cluster is a group of occupations that transports people and things from one place to another.
2. There are six job families that make up the Transportation cluster. They are airborne transport, pipeline transport, space transport, highway transport, water transport, and rail transport.
3. A reservations agent or travel clerk gathers information to help clients make travel arrangements.
4. Because reservations agents deal directly with the public, a good appearance and pleasant personality are essential, as are problem-solving ability and good interpersonal skills.
5. Hiring requirements vary from industry to industry and a high school diploma is usually required. Applicants who have completed some college coursework are preferred in the airline industry.
6. Many reservation agents learn their skills through formal company programs. Those working for the airlines have intense training in a classroom first. Then, they work under supervisors for several weeks, are tested daily, and homework is usually assigned.
7. Employment opportunities for reservation agents and travel agents are expected to increase much faster than the average for all occupations through the year 2000 due to high turnover and increasing customer demand.
8. The petroleum engineer explores and drills for oil and natural gas and usually supervises drilling operations.
9. When the drilling is successful, the petroleum engineer determines the most efficient methods to extract the petroleum from the reservoir.

10. Only a small proportion of the oil and gas will flow under natural forces. The engineer develops recovery methods to enhance production.

11. Employment opportunities here are expected to grow more slowly than the average for all occupations through the year 2000. However, an employment increase is expected due to openings made to replace engineers transferring and retiring.

12. The National Aeronautics and Space Administration, known as NASA, has a need for both pilot astronaut and mission specialist astronaut candidates.

13. Mission specialist astronauts have responsibilities in the areas of crew activity planning, consumables usage, and experiment and payload operations.

14. Currently, the Space Shuttle Orbiter, consisting of five crew members, can last up to 30 days on missions. The crew members include the commander, the pilot, and three mission specialists.

15. Mission tasks include the servicing of existing satellites, operations of specialized laboratories, and will eventually include the construction and servicing of a permanent space station.

16. Requirements for a mission specialist include either a bachelor's degree in engineering, biological sciences, physical sciences, or mathematics with three years of related work, or a master's degee with one year of experience.

17. Every two years NASA recruits new candidates. Once the space station is in operation, there may be an overall employment increase in the space transportation industry.

18. Almost everything you purchase as a consumer is, at some point, transported by truck. Goods may be transported by more than one type of truck driver, such as long-distance truck driver, local truck driver, vending machine sales driver, and store contract delivery driver.

19. Some long-distance truck drivers work 200 days a year away from home. Local truck drivers have fluctuating shifts, but usually work within their home area.

20. The U.S. Department of Transportation requires all interstate truck drivers be at least 21 years old, pass a physical examination, and take a written examination on the Motor Carrier Safety Regulations.

21. Employment is expected to increase as fast as the average for all occupations through the year 2000 as the economy grows and freight hauled by trucks increases.

22. Most local drivers are paid by the hour and earn overtime pay beyond 40 hours a week. Long-distance drivers are generally paid by the mile and sales drivers receive a commission on their sales along with an hourly wage.

23. Deckhands help navigate waterborne craft, particularly on inland waters, such as rivers, canals, and harbors.

24. Deckhands generally learn their skills on the job and they are eligible to take a Coast Guard exam to qualify as a mate, pilot, or captain once experience and knowledge are gained.

25. Overall, employment of water transportation occupations is projected to decline through the year 2000, but this decline will vary by sector.

26. Locomotive engineers are among the most highly skilled workers on the railroad. They transport cargo and passengers between stations.

27. Because trains react differently to acceleration, braking, and curves, depending on the number of cars and the ratio of empty to loaded cars, the locomotive engineer must be constantly aware of both the train's and track's conditions.

28. Railroad companies prefer applicants for engineering jobs be at least 21 years old and have a high school diploma. Beginning engineers usually undergo a 6-month training program that includes both classroom and on-the-job instruction.

29. Employment opportunities are expected to be better for locomotive and yard engineers and subway operators than for other railroad transportation workers. However, a steady decline in job openings is expected to continue through the year 2000.

30. We have investigated a few careers in the transportation business. Keep in mind that people will continue to travel and purchase products that must be delivered. So, while there may be some decreases in employment opportunities, the transportation industry offers services that will always be in demand.

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Transportation Cluster
Narrative and slide description

Slide No.	
1	Focus/synchronize slide
2	Credit slide—EDTC/TEA
3	Credit slide—"40 Hour Week"
4	Credit slide—"Forty Hour Week (For a Livin')"
5	The Transportation cluster is a group of occupations that transports people and things from one place to another.
6	There are six job families that make up the Transportation cluster. They are airborne transport, pipeline transport, space transport, highway transport, water transport, and rail transport.
7	The airborne transport job family is the group of careers that fly people and freight to worldwide destinations. Persons in this endeavor include the pilot, navigator, air traffic control specialist, reservation agent, porter, and cargo agent.
8	A reservation agent or travel clerk gathers information to help clients make travel arrangements.
9	Because reservation agents deal directly with the public, a good appearance and pleasant personality are essential, as are problem-solving ability and good interpersonal skills.
10	Hiring requirements vary from industry to industry and a high school diploma is usually required. Applicants who have completed some college coursework are preferred in the airline industry.
11	Many reservation agents learn their skills through formal company programs. Those working for the airlines have intense training in a classroom first. Homework is usually assigned and they are tested daily. Then, they work under supervisors for several weeks.
12	Employment opportunities for reservation agents and travel agents are expected to increase much faster than the average for all occupations through the year 2000 due to high turnover and increasing customer demand.
13	The median weekly earnings of full-time reservation agents, in 1988, were $423. In addition, airline employees and their immediate families may travel free or at reduced rates.

14	The pipeline transport job family transports solids and liquids by pipe. Occupations involved are coal pipeline operator, gauger, line walker, pumper, pipeliner, compressor station engineer, and petroleum engineer.
15	The petroleum engineer explores and drills for oil and natural gas and usually supervises drilling operations.
16	When the drilling is successful, the petroleum engineer determines the most efficient methods to extract the petroleum from the reservoir.
17	Only a small proportion of the oil and gas will flow under natural forces. The engineer develops recovery methods to enhance production.
18	Starting salaries for petroleum engineers with a bachelor's degree were $32,016 in 1988.
19	Employment opportunities here are expected to grow more slowly than the average for all occupations through the year 2000. However, an employment increase is expected due to openings made to replace engineers transferring and retiring.
20	The space transport job family explores space by moving people and goods in aeronautical devices. Some of the aerospace careers include mission specialist astronaut, pilot astronaut, aerospace engineer, systems analyst, test and research engineer, patternmaker and molder.
21	The National Aeronautics and Space Administration, known as NASA, has a need for both pilot astronaut and mission specialist astronaut candidates.
22	Mission specialist astronauts have responsibilities in the areas of crew activity planning, consumables usage, and experiment and payload operations.
23	Currently, the Space Shuttle Orbiter, with a five-member crew, is capable of 30-day missions. The crew members include the commander, the pilot, and three mission specialists.
24	Mission tasks include the servicing of existing satellites, operations of specialized laboratories, and will eventually include the construction and servicing of a permanent space station.
25	Requirements for a mission specialist include either a bachelor's degree in engineering, biological sciences, physical sciences, or mathematics with three years of related work, or a master's degree with one year of experience.
26	The starting salary, based on education and experience, for a mission specialist is $42,000 to $65,000.
27	Every two years NASA recruits new candidates. Once the space station is in operation, there may be an overall employment increase in the space transportation industry.
28	The highway transport job family moves people and things by bus, truck, or taxi and is comprised of such occupations as truck driver, automobile mechanic, parking lot attendant, taxi driver, bus driver, road supervisor, and traffic agent.

29	Almost everything you purchase as a consumer is, at some point, transported by truck. Goods may be transported by more than one type of truck driver, such as long-distance truck driver, local truck driver, vending machine sales driver, and store contract delivery driver.
30	Some long-distance truck drivers work 200 days a year away from home. Local truck drivers have fluctuating shifts, but usually work within their home area.
31	The U.S. Department of Transportation requires all interstate truck drivers be at least 21 years old, pass a physical examination, and take a written examination on the Motor Carrier Safety Regulations.
32	Employment is expected to increase as fast as the average for all occupations through the year 2000 as the economy grows and freight hauled by trucks increases.
33	Most local drivers are paid by the hour and earn overtime pay beyond 40 hours a week. Long-distance drivers are generally paid by the mile and sales drivers receive a commission on their sales along with an hourly wage.
34	As of 1988, most trucking companies paid an average of $13.50 an hour. Most long-distance truck driver's earnings varied widely, from $20,000 to over $50,000 annually.
35	Those in the water transportation careers move people and goods over the oceans and inland waterways. Such occupations include the captain, also known as master; the mate, also called a deck officer; the deckhands; and riggers.
36	Deckhands help navigate waterborne craft, particularly on inland waters, such as rivers, canals, and harbors.
37	When docking or departing, deckhands handle the lines, as well as perform many maintenance chores involving all nonengineering areas.
38	Deckhands generally learn their skills on the job and they are eligible to take a Coast Guard exam to qualify as a mate, pilot, or captain once experience and knowledge are gained.
39	The median annual earnings for full-time water transportation workers in 1988 were $26,000.
40	Overall, employment of water transportation occupations is projected to decline through the year 2000, but this decline will vary by sector.
41	The rail transport job family transports freight and people by train, subway, or streetcar. The types of occupations include locomotive engineer, conductor, train clerk, yard engineers, roundhouse supervisor, traffic agent, and train dispatcher.
42	Locomotive engineers are among the most highly skilled workers on the railroad. They transport cargo and passengers between stations.
43	Because trains react differently to acceleration, braking, and curves, depending on the number of cars and the ratio of empty to loaded cars, the locomotive engineer must be constantly aware of both the train's and track's conditions.

44	Railroad companies prefer applicants for engineering jobs be at least 21 years old and have a high school diploma. Beginning engineers usually undergo a 6-month training program that includes both classroom and on-the-job instruction.
45	Employment opportunities are expected to be better for locomotive and yard engineers and subway operators than for other railroad transportation workers. However, a steady decline in job openings is expected to continue through the year 2000.
46	Locomotive engineers' earnings in passenger and freight service averaged $54,600, according to 1988 union data.
47	We have investigated a few careers in the transportation business. Keep in mind that people will continue to travel and purchase products that must be delivered. So, while there may be some decreases in employment opportunities, the transportation industry offers services that will always be in demand.
48	May you find gratifying work in your future. Take care of business and ask your teacher or school counselor to help you now in narrowing career options.

COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Officer for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiations, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964; EXECUTIVE ORDERS 11246 AND 11375; TITLE IX, 1973 EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; AND VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED IN 1974.

It is the policy of the Texas Education Agency to comply fully with the nondiscrimination provisions of all federal and state laws and regulations by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any programs or activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency makes positive efforts to employ and advance in employment all protected groups.